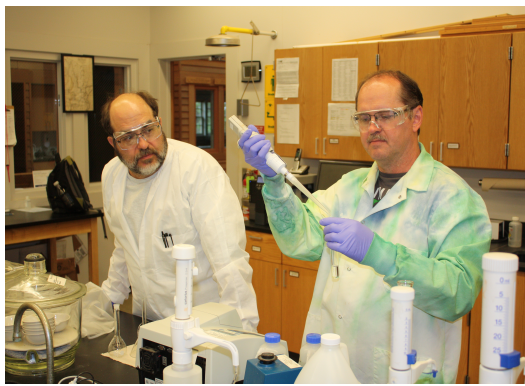


Collaborative Water Monitoring



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Part I: Overview of Business

Lakeside Lab was established in 1909 as an education and research facility. Currently, the lab is affiliated with the University of Iowa, Iowa State University, the University of Northern Iowa, and the State Hygiene Lab. Volunteers (CLAMP) assist research through the collection and processing of water samples from the Iowa Great Lakes and surrounding environs.

Part II: Job Specifics

The State Hygienic Lab routinely analyzes water samples for a variety of parameters. In addition to businesses and municipalities, the lab also provides testing services to community groups and private citizens.

Part III: Introduce the Problem

- A local landowner is concerned the over-application of hog manure on adjacent land may be impacting the waterway flowing through his property.
- Nutrient testing has shown increased levels, but this cannot be conclusively tied to manure.
- Landowner resources to address problem are limited.

Part IV: Background

- Landowner will provide authentic problem to be solved.
- Students will work with lab specialist to develop viable protocols for collecting and analyzing samples.
- Researcher at ISU will assist in the training of students to culture bacteria, isolate DNA, and analyze genomes.

Part V: Business Solution

- Definitive linking to hog manure application can be provided by analyzing the DNA from E. coli bacteria in water samples (source tracking). This service is not currently available through lab.

Part VI: Student Solutions

Since this is an authentic problem that relies on very new technologies (i.e. source tracking), the actual solution is unknown. However, students will use an interdisciplinary approach to solve a community-based problem. (GO STEM!!!)